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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/249,216	02/12/1999	JANNE LAAKSO	297-008493-U	9691

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EXAMINER

MOORE, JAMES K

ART UNIT

PAPER NUMBER

2682

DATE MAILED: 01/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/249,216

Applicant(s)

LAAKSO ET AL.

Examiner

James K Moore

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 17 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-16 in Paper No. 7 is acknowledged.

Claims 17 and 18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 7.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The abstract of the disclosure is objected to because of the reference to Figure 2. Correction is required. See MPEP § 608.01(b).

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

5. Claim 16 is objected to because of the following informalities: in line 1 on page 30, "of" should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitations "the spread spectrum technique" in lines 1-2 and "the method" in line 5. There is insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-9, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Persson (U.S. Patent No. 6,067,446) in view of Pelin (U.S. Patent No. 5,937,014).

Regarding claim 1, Persson discloses a power control system in a mobile system based on a spread spectrum technique (CDMA) and having a mobile station and a base station. The transmit power of more than one bearer is determined at a time with the aid of a method comprising: forming a control function (equation 13) partly on the basis of a quantity (path loss L_j) characterizing at least one bearer; and calculating the control function in order to determine new output power values of the bearers. See col. 4, lines 48-62 and col. 5, line 51 through col. 8, line 39. Persson does not disclose that the quantity characterizing the bearer at least partly represents the fast fading experienced by the bearer. However, Pelin discloses that the fast fading experienced by a bearer is another factor which degrades received signal quality. See col. 1, lines 13-21. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Persson with Pelin, such that the control function is also formed partly on the basis of a quantity which partly represents the fast fading experienced by a bearer, in order to compensate for the effects of fast fading on the signal quality of the bearer.

Regarding claim 2, Persson in view of Pelin teaches all of the limitations as applied to claim 1 above. Persson also discloses that the control function is formed at

least partly on the basis of an at least partial history of the power control of at least one bearer. See equation 16.

Regarding claim 3, Persson in view of Pelin teaches all of the limitations as applied to claim 1 above. Persson also discloses that the transmit power of more than one bearer is determined when the transmission of at least one bearer (belonging to M4) is initiated. See col. 5, line 51 through col. 6, line 8.

Regarding claim 4, Persson in view of Pelin teaches all of the limitations as applied to claim 1 above. Persson also discloses that the transmit power of more than one bearer is determined when the transmission of at least one bearer is terminated. See col. 2, lines 16-27; col. 3, lines 25-35; and col. 7, lines 22-24.

Regarding claim 5, Persson in view of Pelin teaches all of the limitations as applied to claim 1 above. Persson also discloses that the transmit power of more than one bearer is determined when the transmit power of at least one bearer changes. See col. 3, lines 36-44.

Regarding claim 6, Persson in view of Pelin teaches all of the limitations as applied to claim 1 above. Persson also discloses that the transmit power of more than one bearer is determined when the target level of the correctness (frame error rate) of at least one bearer changes. See col. 7, lines 25-35.

Regarding claim 7, Persson in view of Pelin teaches all of the limitations as applied to claim 1 above. Persson also discloses that the transmit power of more than one bearer is determined when the transmission rate of at least one bearer changes. See col. 5, lines 51-60.

Regarding claim 8, Persson in view of Pelin teaches all of the limitations as applied to claim 1 above. Persson also discloses that the transmit power of more than one bearer is determined when at least one base station of at least one bearer is changed in a macro diversity combination. See col. 9, lines 51-64.

Regarding claim 9, Persson in view of Pelin teaches all of the limitations as applied to claim 1 above. Persson also discloses that the control function may be at least partly formed on the basis of the desired correctness levels (frame error rate) of the bearers. See col. 7, lines 25-35.

Regarding claim 13, Persson in view of Pelin teaches all of the limitations as applied to claim 1 above. Persson also discloses that the output power of more than one base station and the mobile stations managed by the base stations may be controlled with the method, and that the control function is formed partly on the basis of how strong the signal of each base station is received in at least one mobile station of each other base station. See col. 10, lines 4-12.

Regarding claim 16, Persson discloses an element (base station) of a mobile system comprising: means to generate a quantity (path loss L_j) characterizing at least one bearer; means to determine the output power for more than one bearer partly on the basis of the quantity; and means to control the output power of at least one bearer on the basis of the output power values. See col. 4, lines 48-62 and col. 5, line 51 through col. 8, line 39. Persson does not disclose that the quantity characterizing the bearer at least partly depends on the fast fading experienced by the bearer. However, Pelin discloses that the fast fading experienced by a bearer is another factor which

degrades received signal quality. See col. 1, lines 13-21. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Persson with Pelin, such that the control function is also formed partly on the basis of a quantity which partly depends on the fast fading experienced by a bearer, in order to compensate for the effects of fast fading on the signal quality of the bearer.

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Persson in view of Pelin as applied to claim 1 above, and further in view of Reed (U.S. Patent No. 5,574,984).

Regarding claim 10, Persson in view of Pelin teaches all of the limitations as applied to claim 1 above, but does not teach that the method comprises a step in which it is check whether each determined output power value is within the range formed by the typical minimum and maximum limits of the respective bearer, whereby the output power values are taken in use if no one of the values is outside the region. However, Reed discloses a power control method which comprises checking whether an output power value is within a range formed by typical minimum and maximum limits of a bearer. This allows the method to account for the power limitations of the base station equipment. See col. 1, lines 45-59. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Persson in view of Pelin with Reed, such that the method comprises a step in which it is check whether each determined output power value is within the range formed by the typical minimum and maximum limits of

the respective bearer, in order to stay within the limitations of the base station equipment.

11. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Persson in view of Pelin as applied to claim 1 above, and further in view of Haartsen (U.S. Patent No. 5,491,837).

Regarding claim 15, Persson in view of Pelin teaches all of the limitations as applied to claim 1 above, but does not teach that the method comprises a step in which a decision is made on the basis of the generated output power values for allowing the transmission of at least one bearer. However, Haartsen discloses a bearer allocation method which uses generated output power value measurements for deciding which bearers to use for transmission. This allows the system capacity to be maximized because the bearers having the minimum required transmission power are allocated. See col. 3, line 34 through col. 4, line 7. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Persson in view of Pelin with Haartsen, such that a decision is made on the basis of the generated output power values for allowing the transmission of at least one bearer, in order to maximize system capacity.

Allowable Subject Matter

12. Claims 11, 12, and 14 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter:

The present invention is directed to a method for determining the transmit power of more than one bearer. The method comprises generating an interference effect matrix which represents the mutual interferences of different bearers, forming a control function at least partly on the basis of a quantity which at least partly represents the fast fading experienced by at least one bearer, and calculating the control function in order to determine new output power values of more than one bearer.

Claim 11 identifies the uniquely distinct feature "the generated interference effect matrix is inverted in order to form the new power levels."

Claim 14 identifies the uniquely distinct features "a utility function is formed in order to select one set of output power values" and "that set of output power values is selected, which minimizes the value of said utility function."

The closest prior art, Persson discloses a method for determining the transmit power of more than one bearer. The method comprises generating an interference effect matrix which represents the mutual interferences of different bearers, forming a control function at least partly on the basis of a quantity which at least partly characterizes at least one bearer, and calculating the control function in order to

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determine new output power values of more than one bearer. However, Persson fails to anticipate or render the above underlined limitations obvious.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ken Moore, whose telephone number is (703) 308-6042. The examiner can normally be reached on Monday-Friday from 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin, can be reached at (703) 308-6739.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Ken Moore

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A handwritten signature in black ink, appearing to read 'V. Chang', is positioned above the printed name.

VIVIAN CHANG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800